26th Annual

Texas Plant Protection Conference

“Water: The Limiting Factor for Crop Production in Texas”

December 10 & 11, 2014

The Brazos Center
Bryan, Texas
2014 Texas Plant Protection Conference

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2014 Conference Agenda

26TH ANNUAL
TEXAS PLANT PROTECTION CONFERENCE

"Water: The Limiting Factor for Crop Production in Texas"

December 10, 2014

8:00 am – 5 pm Conference Registration Desk Open

8:00 – 9:00 am Table-top Display Set-up

9:00 am – 12:00 noon General Session #1
Moderator: Dale Mott, TPPA President

9:00 – 9:05 am Welcome - William Dugas, Acting Vice Chancellor for Texas A&M AgriLife

9:05 – 9:20 am 1 Impact of the Drought on Texas Agriculture – Travis Miller, Interim Director for State Operations with the Texas A & M AgriLife Extension Service

9:20 – 9:40 am 2 Climate Variability: Texas and the Triple Whammy – John Nielsen-Gammon, Texas State Climatologist, Texas A & M University

9:40 – 10:00 am 3 How SWIFT Will Meet Texas' Water Needs – Carlos Rubinstein, Chairman, Texas Water Development Board

10:00 – 10:30 am Break - Review Posters & Displays

10:30 – 10:50 am 4 Texas Alliance for Water Conservation: A Model for Conserving Water in Irrigated Cropland of West Texas– Rick Kellison, Texas Alliance for Water Conservation

10:50 – 11:10 am 5 Irrigation Methods and Management - Jim Bordovsky, Texas A & M AgriLife Research

11:10 – 11:30 am 6 Agricultural Innovations from Industry to deal with Climate Change, - Dr. Shannon Haufl, Global Cotton & Specialty Crops Lead, Monsanto

11:30 – 11:50 am 7 Is Water Limiting our Ability to Produce?– J. Allen Carnes, Farmer & Owner, Winter Garden Produce, Uvalde Texas

12:00 noon – 1:30 pm Lunch (on your own)

1:30 pm – 2:30 pm General Session #2
2014 Conference Agenda

1:30 – 1:50 pm 8 Drought Impact on Texas Wildlife – Roel Lopez, Director, Texas A&M Institute of Renewable Natural Resources

1:50 – 2:10 pm 9 Unmanned Aerial Vehicles (UAV’s) in Agriculture - Mac McKee, Executive Director, Water Research Laboratory, Utah State University

2:10 – 2:30 pm 10 Precision to Decision: Managing the Most Critical Inputs – Nitrogen and Water- Ron Sabatka, DuPont Pioneer - Encirca Services Business Unit Lead – Western Business Unit, Wahoo, NE

2:30 – 3:00 pm ................................................................. Break - Poster Review - View Displays

3:00– 3:30 pm ............................................................................................................ Pest ID Contest
Barron Rector, Texas AgriLife Extension Service, Chairman

3:30 - 5:45 pm ............................................................................................................ General Session

New Technology & Chemistry
Moderator: Gary Schwarzlose, Bayer Crop Science

✓ 3:30 – 3:45 pm 11 “BASF Update: Providing Solutions for Growers”, Adam Hixson, BASF

3:45 – 4:00 pm 12 “Bayer CropScience Product Update”, Gary Schwarzlose, Bayer CropScience

4:00 – 4:15 pm 13 “Dow AgroSciences LLC Insecticide Update”, Vernon Langston, Dow AgroSciences

4:15 – 4:30 pm 14 “New Technology from DuPont Crop Protection”, Eric Castner, DuPont Crop Protection

4:30 – 4:45 pm 15 “Roundup Ready Xtend Crop System Details and Updates”, Luke Ethordge, Monsanto

4:45 – 5:00 pm 16 “Nichino America Product Update”, Scott Ludwig, Nichino America

5:00 – 5:15 pm 17 “New Products from Syngenta”, Pete Eure, Syngenta Crop Protection

5:15 – 5:30 pm 18 “New Products and Updated Use Patterns from Valent USA”, Chris Meador, Valent USA

5:30 -5:45 pm 19 “PMDI- Precision Mobile Drip Irrigation”, Danny Sosebee, Netafim
2014 Conference Agenda

December 11, 2014

7:30 am – 3 pm Conference Registration Desk Open

General Session

8:00 - 9:00 am Laws & Regulations
Moderator: Randy Rivera, Texas Department of Agriculture

9:00 – 10:00 am Fertility Management
Moderator: Jimmy Schult, Sanders, Inc

9:00 - 9:15 am 20 “Ammonia Nitrate Legislation Update”, Donnie Dippel, President, Texas Ag Industries Association


9:30 – 9:45 am 22 “State of the Fertilizer Industry”, Larry Unruh, American Plant Food Corporation

9:45 – 10:00 am 23 “Cover Crops to Enhance Nutrient Availability”, Willie Durham, USDA-NRCS

10:00 – 10:30 am Break - Poster Review - View Displays

10:30 – 12:00 noon Concurrent Sessions

Grain (Corn, Sorghum, Rice, Soybeans)

Moderator: Clark Neely, Texas A & M AgriLife Extension Service

10:30 -10:45 am 24 “Sugarcane aphid on sorghum: distribution, damage, thresholds, and Insecticides”, Michael Brewer, Assistant Professor and Field Crop Entomologist Texas A&M AgriLife Research and Extension Center, Corpus Christi, TX

10:45 – 11:00 am 25 “Texas Grain Sorghum Production/Technology Update”, Wayne Cleveland, Executive Director, Texas Grain Sorghum Producers

11:00 – 11:15 am 26 “New Developments from RiceTec”, Brian Ottis, Solutions Development Manager, RiceTec

11:15 – 11:30 am 27 “High Throughput Root Biomass Phenotyping in Wheat as a Mean to Increase the Speed of Drought Adaptive Trait Breeding”, Dirk B. Hays Prof Cereal Grains Geneticist, Department of Soil and Crop Sciences, Texas A&M University, College Station, TX
2014 Conference Agenda

11:30 – 11:45 am  28 "Potential for Increased Cowpea Production in Texas", B.B. Singh, Visiting Professor and Cowpea Breeder Department of Soil and Crop Sciences and Borlaug Institute for International Agriculture, Texas A&M University, College Station, TX

11:45 – 12:00 noon  29 "The Future of Canola in Texas", Clark Neely, Assistant Professor and Small Grains Extension Specialist, Texas A&M AgriLife Extension, Texas A&M University, College Station, TX

Cotton (Production & Genetics)  

Moderator: Gaylon Morgan, Texas A & M AgriLife Extension Service

10:30 -10:45 am  30 “Farm Bill and Crop Insurance Update: What are the Critical Changes for 2015?” Joe Outlaw, Texas A & M AgriLife Extension Service

10:45 – 11:00 am  31 “Cotton Market Outlook and Risk Management Considerations” John Robinson, Texas A & M AgriLife Extension Service

11:00 – 11:15 am  32 “The Enlist Weed Control System- An Update”, Robert Lemon and Jonathan Siebert, Dow AgroSciences

11:15 – 11:30 am  33 “Bollgard II XtendFlex Cotton Update and Performance”, Shene Halfmann, Monsanto


11:45 – 12:00 noon  35 “WideStrike and BollGard Protected Cotton: Performance Comparisons of Current and Next Generation Bt Products”, Robert Bowling, Texas A & M AgriLife Extension Service

12:00 noon – 2:00 pm  

Awards Luncheon & Business Meeting  
Moderator: Dale Mett, 2014 TPPA President  
(Included in registration fee)

2:00 – 3:30 pm  

Concurrent Sessions

Horticulture / Turf  

Moderator: Joe Masabni, Texas A & M AgriLife Extension Service

2:00 - 2:15 pm  36 “Turfgrass Water Use: Considerations of Quantity and Quality”, Casey Reynolds, Assistant Professor and State Extension Turfgrass Specialist, Department of Soil and Crop Sciences, Texas A&M University

2:15 – 2:30 pm  37 “Aquaponics in Texas” Joseph Masabni, Assistant Professor and Extension
2014 Conference Agenda

Vegetable Specialist, Department of Horticultural Sciences, Texas A&M University

2:30 – 2:45 pm  38 "Gray Water Use in the Landscape", Raul Cabrera, Associate Professor, Uvalde Research and Education Center, Texas A&M University

2:45 – 3:00 pm  39 "Ornamental Crops Research", Sean Canner, MS Student, Dept. of Horticultural Sciences, Texas A&M University

3:00 – 3:15 pm  40 "Strawberry Production in Texas", Russ Wallace, Associate Professor and Extension Horticulturist, Lubbock Research and Education Center, Texas A&M University

3:15 – 3:30 pm  41 "Turfgrass for Texas: Now and in the Future", John Cosper, Executive Director of Turfgrass Producers of Texas, Houston, TX

3:30 – 3:45 pm  42 "Vertical Farming – A new form of plant production", Dr. Genhse Niu, Associate Professor, Texas A&M AgriLife Research Center, El Paso, TX

Pasture & Rangeland

Moderator: Vernon Langston, Dow AgroSciences

2:00 - 2:15 pm  43 "Managing Tanglehead in South Texas with Patch Burning and Grazing", Megan K Clayton, Erasmo Montemayor, and Robert K. Lyons, Texas A & M Agrilife Extension Service

2:15 – 2:30 pm  44 "Building Soil Health with Grazing Management", Jeff Goodwin, USDA-NRCS, Darren Harel, USDA-ARS, Nathan Halle, USDA-NRCS, Willie Durham, USDA-NRCS

2:30 – 2:45 pm  45 "Individual Plant Treatments: Methods and Products for Superior Control of Brush Species", V.B. Langston, P.L. Burch, D.C. Cummings, E.S. Flynn, M.B. Halstedt, V.F. Peterson, Dow AgroSciences

2:45 – 3:00 pm  46 "Insect Management in Pastures and Hay Meadows", Stephen Biles, Texas A&M Agrilife Extension Service

3:00 – 3:15 pm  47 "Effects of Simulated 2,4-D and Dichlobenil Drift on Field Grown Tomato Plants", Morgan Metting, Paul Baumann, Joseph Masabni, Matt Matocha, Josh McGinty, Texas AgriLife Extension Service

3:15 – 3:30 pm  48 "Pasture Management", Barron Reeder, Texas A & M Agrilife Extension Service

3:30 – 3:45 pm  49 "Upcoming Warm-season Perennial Forage Grass Cultivar Submissions for the Southern U.S.,” Russell Jessup, Texas A & M University

3:45 pm Adjourn
Poster Abstracts

1Soil and Crop Sciences, Texas A&M University, College Station, TX
2Texas A&M AgriLife Research, Amarillo, TX
3International Maize and Wheat Improvement Center (CIMMYT), Apdo Postal 6-641, C.P. 06600, D.F., Mexico
4Genomics and Bioinformatic Center, Texas A&M AgriLife Research, College Station, TX

Stripe (Yellow) rust, caused by *Puccinia striiformis* Westend. f. sp. *tritici* Eriks. (*Pst*), is an important foliar disease of wheat (*Triticum aestivum* L.) in the U.S. and other parts of the world. TAM 111 is a widely adopted winter wheat cultivar in the Southern Great Plains, which showed resistance in an epidemic year of 2010 but susceptibility in 2012. In order to study adult plant resistance in this popular drought tolerant cultivar, a mapping population of 124 F5 and F6 derived recombinant inbred lines (RILs) developed from the cross of two drought tolerant cultivars TAM 112 and TAM 111. Reactions of *Pst* populations were evaluated in eight field environments in the U.S. This RIL population was genotyped with Diversity Arrays Technology (DArT), simple sequence repeats (SSRs), sequence tagged site (STS), infinium iSelect array single nucleotide polymorphic (SNP), and genotyping-by-sequencing (GBS) markers. The largest and most consistent stripe rust resistance QTL was identified on chromosome 2BL, explained for 10.2-35.0% of the phenotypic variance in infection type (IT) and 9.5-29.3% of the variance in disease severity (DS) across the environments. The additive effect of IT ranged from 0.18 to 0.25 and of DS from 0.13% to 3.92%. *QTy.tamu-2BL* showed the highest additive effect on both IT and DS. In addition, this major QTL had significant QTL by environmental interactions, epistasis interactions and epistasis-environment interactions. This QTL should be beneficial combining with effective major genes to enhance the stripe rust resistance through marker-assisted breeding.

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Comparison of cryotherapy methods to eliminate virus in potato
Ida A. Astarii, Associate Professor, Biology Department, Udayana University, Bali, INA
Angel Chappell, Technical Assistant; Douglas C. Scheurling, Senior Research Associate; Sean M. Thompson, Postdoctoral Research Associate; J. Creighton Miller, Jr., Professor, Texas A&M University, Department of Horticultural Sciences, College Station, Texas, USA

Virus-free, early generation seed is key in the production of high quality potatoes. Recent methods of virus elimination involve cryotherapy. This study investigated the effectiveness of different cryotherapy procedures evaluated by explant survival rate. Five genotypes were exposed to three cryotherapy methods: 1) encapsulation-dehydration, 2) encapsulation-vitrification, and 3) droplet-vitrification. The first method included pre-culturing shoot tips (1-2 mm) in sucrose media and formation of beads, followed by dehydration for 5 hours in a laminar hood and freezing in liquid nitrogen for 60 minutes. The second method differed by immersion of the beads in a vitrification solution prior to freezing in liquid nitrogen. In the third method, shoot tips were pre-cultured for three days and placed in 3°C to harden the shoot tips, followed by incubation in vitrification solution, then frozen in liquid nitrogen. Following treatment, shoot tips were cultured in standard MS media for recovery, supplemented with 0.5 mg/L IAA, 0.5 mg/L Zeanin riboside, and 0.2 mg/L Gibberellic acid and incubated in the dark at 22°C for three days. Shoot tip survival was assessed at four and eight weeks using the following scoring criteria: 1- tissue bleaching and no growth response, 2- brown callus, 3- green callus, 4- shoot growth, and 5- plantlet establishment. Untreated control shoots displayed normal growth (score ≥4). Low survival in procedures 1 and 2, in which only swelling and green callus were observed on shoot tips (score ≤3), have been observed while evaluation of procedure 3 is ongoing.
Comparison of cryotherapy methods to eliminate virus in potato

Isa A. Castro, Assistant Professor, Biology Department, Ulsan University, Busan, South Korea

Angela L. Chappel, Technical Assistant, Doane O. Schrader, Senior Research Associate, Dean R. Thompson, Plant Research/Associate, D. Craig M. Miller, J. Craig M. Miller, Professor, Texas A&M University, Department of Agricultural Science, College Station, Texas, USA

Abstract

Cryotherapy, early generation used to be used in the production of high-quality potato. Recent methods of virus elimination based on Cryotherapy. This study investigated the effectiveness of different cryotherapy protocols evaluated by onion survival rate. Four protocols were assessed in three cryotherapy methods: 1) cryo-irradiation treatment, 2) cryo-irradiation, and 3) cryopreservation. The first method involved precooling of sprouts (24 h) in water to accelerate water and formation of ice. The second method involved immersion of the buds in a cryopreservation solution prior to freezing to liquid nitrogen. In the third method, shoots that had been precooled for three days were placed in a freezing chase culture medium followed by freezing and submergence in liquid nitrogen. Following treatments, buds were cultured in standard MS media for onion survival supplemented with 0.08 mg L-1 IBA, 0.04 mg L-1 BA, and 75 mL L-1 sucrose. Average survival of 95% was observed for all treatments.

Introduction

Cryotherapy protocols originate from cryopreservation in the 1980s but these treatments have been successfully applied to the potato industry. In the 1980s, cryotherapy was a major component in the cryopreservation of potato tissues. Now, cryotherapy is an effective method for eliminating viruses in vitro. The cryopreservation of potato tissue has been shown to be an effective method for eliminating viruses in vitro. In this study, we evaluated the effectiveness of different cryotherapy protocols on onion survival rate.

Literature Cited


Materials and Methods

Four virus-positive cultures were used for these treatments: CDV, PVY, PVX, and PVX. These separations were chosen for different host species and provide differences in response to cryotherapy treatments. Cryotherapy used three different protocols: 1) cryo-irradiation, 2) cryo-irradiation, and 3) cryopreservation. Details of the protocols are presented in Table 1.

Exposure of materials and methods

Treatments 1: Precooling, precooling, and cryo-induced pretreatment. Pretreatments were chosen for different virus species and provide differences in response to cryotherapy treatments. Cryotherapy used three different protocols: 1) cryo-irradiation, 2) cryo-irradiation, and 3) cryopreservation. Details of the protocols are presented in Table 1.

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